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Original Research Paper

The effect of "Bumil Waspada" to prevent hypertension

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Abstract
Deficits in self-care skills such as liking to eat fried foods, foods high in fat and salt, lack of rest, and laziness to exercise are the causes of hypertension in pregnancy. Hypertension in pregnancy can be overcome by providing educational assistance to high-risk groups in the form of preventive measures such as a diet low in sodium and fat, walking, consuming calcium supplements, monitoring weight gain, and hydrotherapy that is a member of "Bumil Waspada". The purpose of this study is to determine the effect of "Bumil Waspada" on the ability to take care of herself in pregnant women with risk factors for hypertension. The design of this study used one group pretest-postest with purposive sampling, namely pregnant women with risk factors for hypertension in the working area of the Selogiri Health Center, Wonogiri Regency, totalling 47 people. The media used are educational texts with pictures and questionnaires as instruments. Bivariate analysis uses the Wilcoxon test. The study results showed an increase in self-care ability in the "good" category from 1 person to 23 people and another 24 people in the "adequate" category. The results of the Wilcoxon test showed a value of Z > z and p-value = 0.000 < 0.05, so there was a significant average difference between before and after the intervention. "Bumil Waspada" affects the ability to take care of herself in pregnant women with risk factors for hypertension.

Keywords: high-risk pregnancy; pregnancy education; self-care

1. Introduction

Hypertension is the disease with the largest proportion (76.5%) in Non-Communicable Diseases (NCDs) (Nugraha, 2022). Hypertension is a disease that often occurs during pregnancy. The World Health Organization (WHO) revealed that Hypertension in Pregnancy (HIP) is one of the causes of mortality in pregnant women in the world with a prevalence of 20% of deaths (Putri & Susanto, 2022). HIP is also the leading cause of maternal mortality in Central Java, Indonesia. HIP has caused 1,077 deaths in Indonesia and 156 of them are in Central Java. The death case makes Central Java ranked 2nd after West Java. Wonogiri Regency is ranked 4th out of 35 districts/cities in Central Java with 9 cases of death of pregnant women due to hypertension (Suminar, 2022).

The incidence of HIP is influenced by the following factors, parity ≥ 4 times (83.3%), parity distance <2 years (73.3%), history of hypertension (63.3%), age <20 years (56.5%), >35 years (54.2%), primipara (52.7%), have a genetic history from the mother (43.3%), obesity (40%), consume salty foods (60.9%) and fatty foods (47.8%) >1 time per day, and drink coffee (80.9%) are more prone to HIP (Diana & Turiyani, 2022; Kintiraki et al., 2015; Marlina et al., 2021; Y. Putri & Susanto, 2022; Sulistiawati, 2022). Obesity factors, consumption of salty and fatty foods, and drinking coffee can increase the risk of pregnant women to HIP if there is a self-care deficit. Lack of maintaining diet, activity and physical exercise, inability to control stress and weight gain, and non-compliance with the rules that have been recommended are forms of deficit in self-care ability (Mulyani et al., 2022; Sari, 2019). Self-ability deficits increase the risk of hypertension in pregnancy, especially in high-risk groups

such as primigravidas, maternal age at risk, have a history of hypertension, overnutrition, or obesity (Masriadi et al., 2022; Saifuddin, 2016).

The government has made efforts to prevent HIP together with health workers, but deaths caused by HIP are still found in Selogiri District, which is part of Wonogiri Regency in Central Java, which is one death in 2022. The case was caused by the mother's lack of ability to take care of herself as seen from ANC visits <6 times. In addition, other factors encountered from HIP sufferers are continuing to be active even though they feel tired, not doing enough physical exercise, and consuming fried and stir-fried food >1 time per day. However, it can actually be overcome by education on how to prevent HIP such as diet, regular ANC, physical exercise, and overcoming stress, one of which is from social media.

Health messages given through social media will look more attractive, easy to understand, repeatable, and consumed by many pregnant women (Aliva et al., 2021). However, health messages in the form of preventive innovations against HIP are still rarely found both in the field and on social media. Innovations to prevent HIP such as a low-sodium and fat diet, walking, consumption of calcium supplements, monitoring weight gain, and hydrotherapy will certainly be useful for pregnant women at high risk of hypertension to improve the deficit in their self-care ability (Aryani & Zayani, 2020; Edesen, 2023; Gustirini, 2019; He et al., 2020; Idrus et al., 2020; Kartika et al., 2017; Lewandowska et al., 2020).

Researchers have previously proven that health messages given through Instagram can increase the readiness of pregnant women in facing childbirth (Sarasati, 2020). Other studies mention other social media, for example WhatsApp is also able to increase compliance to take blood supplement tablets in pregnant women with anemia through broadcast health messages (Mulyani et al., 2022). Therefore, researchers are interested in researching whether there is an effect of health promotion packaged in "Bumil Waspada" through social media on the ability to take care of pregnant women with hypertension risk factors.

2. Research Methods

This study is a quantitative research with a quasi-experimental type and one-group pretest-postest design. The research was carried out in the working area of the Selogiri Health Center, Wonogiri Regency with a data collection procedure in May – June 2023. This research has been declared ethically feasible with No: 1.056/VI/HREC/2023 by the Health Research Ethics Commission of Dr. Moewardi Hospital.

Fifty pregnant women had risk factors for hypertension, then sampling was carried out using purposive sampling techniques with inclusion criteria, namely primipara, age <20 years or >35 years, have a history of hypertension, BMI before pregnancy ≥25, and gestational age 13-39 weeks. Two pregnant women refused to be respondents or had other complications in this pregnancy were not included in the study, so that 48 pregnant women were obtained. However, one person lost follow-up because she could not be contacted.

Respondents were included in the WhatsApp group and received the same intervention according to the extension event unit. The researcher provides interventions in the form of education about HIP including the definition and preventive measures. The intervention was given once and followed up for seven consecutive days. The media used is in the form of pictorial educational texts.

The researcher collected data on the 1st and 7th days. Researchers used a questionnaire as a behavioral measure, which contained 15 questions about self-care behaviors to prevent hypertension, namely, adherence to diet and recommended rules, physical activity, stress control and weight that had been tested for validity. The validity test uses the Pearson formula, resulting in the value of r calculation > r table sig. 0.05 in each question, so it is declared valid. The questionnaire has also been tested for reliability using Cronbach's alpha formula with a value of 0.95 in the "very reliable" category in the

research by Annisa Mulyani (Mulyani et al., 2022). Univariate data were analysed using frequency distribution, and bivariate data were analysed using the Wilcoxon Signed Rank Test to determine the difference between before and after the intervention was given. The research data is presented in the form of tables and narratives.

3. Results and Discussion

Table 1 shows that out of 47 respondents, 36 respondents (77%) were not at risk. The majority of the last education taken by the respondents was at the secondary level of 31 people (66%). Most of the respondents have jobs as IRTs, which is as many as 23 people (49%). The majority of respondents had obstetric status as primigravida, which was 32 people (68%). The majority of respondents were included in the normal BMI category and experienced an increase in BMI according to the parameters, namely 33 people (70%) and 34 people (72%). The majority of respondents did not have a history of hypertension, namely 40 people (83%).

Table 1. Subject Characteristics

Characteristic	n (%)
Age (Years)	
Risky	11 (23)
No Risk	36 (77)
Education	
Elementary	3 (6)
High School	31 (66)
Higher Education	13 (28)
Work	
Official	14 (30)
Self-employed	10 (21)
Housewife	23 (49)
Obstetric Status	
Primigravida	32 (68)
Multigravida	15 (32)
BMI Before Pregnancy (kg/m2)	
Thin	5 (11)
Normal	33 (70)
Fat	13 (6)
Obesity	3 (3)
Weight Gain (kg)	
According to the parameters	34 (72)
Not Compliant with Parameters	13 (28)
History of Hypertension	
Exist	7 (15)
None	40 (83)

Source: Primary Data, 2023

Table 2 shows that most self-care indicators were "never" done by respondents before the intervention, namely light exercise and continuing to do work even though they felt tired, namely as many as 20 respondents (42.6%).

Table 2. Self-Care Ability Indicators Before Intervention

Statement	Always n(%)	Often n(%)	Sometimes n(%)	Ever n(%)	Never n(%)
Diet Adherence					
I limit the use of salt and foods with high salt content during pregnancy	4 (10.6)	9 (6.4)	26 (55.3)	3 (19.1)	5 (8.5)
I eat high-protein foods such as nuts, fish, meat, and dairy.	24 (51.1)	17 (36.2)	5 (10.6)	1 (2.1)	0 (0)
I limit the consumption of high-fat for example offal or chicken skin	5 (10.6)	11 (23.4)	20 (42.6)	7 (14.9)	4 (8.5)
I eat fried foods	9 (19.1)	10 (21.3)	26 (55.3)	2 (4.3)	0 (0)
I eat fruit	19 (40.4)	16 (34)	12 (25.5)	0 (0)	0 (0)
I eat vegetables	25 (53.2)	15 (31.9)	7 (14.9)	0 (0)	0 (0)
I consume high-caffeine beverages such as coffee or tea	15 (31.9)	10 (21.3)	14 (29.8)	3 (6.4)	5 (10.6)
I eat fast food, burgers, pizza, nuggets, or noodles	0 (0)	1 (2.1)	26 (55.3)	16 (34)	0 (0)
Compliance with Recommended Rules					
I am taking calcium supplements prescribed by a doctor or other healthcare professional	39 (83)	7 (14.9)	1 (2.1)	0 (0)	0 (0)
I avoid the stress and anxiety that plague my mind	10 (21.3)	24 (51.1)	8 (17)	5 (10.6)	0 (0)
Physical Activity					
I still do work (sweeping, mopping, washing, cooking, and other work) even though I feel tired	20 (42.6)	2 (4.3)	20 (42.6)	3 (6.4)	2 (4.3)
I take a leisurely walk in the morning for 15-30 minutes 2-3 times per week	10 (21.3)	12 (25.5)	13 (27.7)	1 (2.1)	11 (23.4)
I take breaks between activities both heavy and light activities	29 (61.7)	8 (17)	9 (19.1)	0 (0)	1 (2.1)
Weight Control					
I noticed weight gain during pregnancy	22 (46.8)	8 (17)	10 (21.3)	1 (2.1)	6 (12.8)
I keep exercising lightly to stay fit and avoid gaining excess weight	4 (8.5)	9 (19.1)	7 (14.9)	7 (14.9)	20 (42.6)

Source: Primary Data, 2023

Table 3 shows that the majority of indicators included in the category of "never" were done by respondents when, after being given the intervention, they were to continue doing work even though they felt tired (10.6%).

Table 3. Indicators of Self-Care Ability After Intervention

Statement	Always n(%)	Often n(%)	Sometimes n(%)	Ever n(%)	Never n(%)
Diet Adherence					
I limit the use of salt and foods with high salt content during pregnancy	11 (23.4)	22 (46.8)	13 (27.7)	1 (2.1)	0 (0)
I eat high-protein foods such as nuts, fish, meat, and dairy.	44 (93.6)	3 (6.4)	0 (0)	0 (0)	0 (0)
I limit the consumption of high-fat for example offal or chicken skin	15 (31.9)	22 (46.8)	10 (21.3)	0 (0)	0 (0)
I eat fried foods	0 (0)	3 (6.4)	34 (72.3)	9 (19.1)	1 (2.1)
I eat fruits	24 (51.1)	20 (42.6)	3 (6.4)	0 (0)	0 (0)
I eat vegetables	36 (76.6)	10 (21.3)	1 (2.1)	0 (0)	0 (0)
I consume high-caffeine beverages such as coffee or tea	3 (6.4)	2 (4.3)	6 (12.8)	16 (4.3)	20 (42.6)
I eat fast food, burgers, pizza, nuggets, or noodles	0 (0)	0 (0)	1 (2.1)	26 (55.3)	20 (42.6)
Compliance with Recommended Rules					
I am taking calcium supplements prescribed by a doctor or other healthcare professional	40 (85.1)	6 (12.8)	1 (2.1)	0 (0)	0 (0)
Stress Control					
I avoid the stress and anxiety that plague my mind	25 (53.2)	16 (34)	6 (12.8)	0 (0)	0 (0)
Physical Activity					
I still do work (sweeping, mopping, washing, cooking, and other work) even though I feel tired	5 (10.6)	15 (31.9)	21 (44.7)	2 (4.3)	4 (8.5)
I take a leisurely walk in the morning for 15-30 minutes 2-3 times per week	20 (42.6)	12 (25.5)	12 (25.5)	3 (6.4)	0 (0)
I take breaks between activities both heavy and light activities	35 (74.5)	8 (17)	4 (8.5)	0 (0)	0 (0)
Weight Control					
I noticed weight gain during pregnancy	32 (68.1)	8 (17)	6 (12.8)	1 (2.1)	0 (0)
I keep exercising lightly to stay fit and avoid gaining excess weight	5 (10.6)	13 (27.7)	15 (31.9)	12 (25.5)	2 (4.3)

Source: Primary Data, 2023

Table 4 shows respondents who have good self-care skills before being given the intervention as many as one person and after being given the intervention as many as 23 people. Table 5 shows that the results of the Wilcoxon Signed Rank Test have a Z value of -5.014 and a Z value of the table with $\alpha = 0.05$ equivalent to -1.645 and a p-value = 0.000, so that Z is calculated > Z table and $\alpha<0.05$, meaning that H_a is accepted and H_0 is rejected, which is the influence of "Pregnant Woman in Alert" on the ability to take care of herself in pregnant women with hypertension risk factors.

Table 4. Level of self-care ability before and after the intervention

Category	Before Intervention n (%)	After Intervention n (%)
Good	1 (2)	23 (49)
Adequate	41 (87)	24 (51)
Less	5 (11)	0 (0)
Very Less	0 (0)	0 (0)

Source: Primary Data, 2023

Table 5. The Effect of "Pregnant Woman in Alert" on Self-Care Ability

Self-Care Abilities	Negative ranks			Positive ranks			Test statistics		
	n	Mean rank	Sum of ranks	n	Mean rank	Sum of rank	Ties	Z	p
Post-test–Pre-test	0	0.00	0.00	26	13.50	351	21	-5.014	0.000

Source: Primary Data, 2023

3.1.Self-Care Skills Before Intervention

Data before the intervention showed that the majority of respondents had self-care skills with sufficient categories. Self-care indicators that respondents never did were light exercise and continuing to do work even though they felt tired, leisurely walking, consuming fried foods, using salt, controlling the increase in body weight, consuming tea, consuming foods with high-fat content, and resting.

Gravida status is one of the factors that researchers consider to have a role in this study. Four out of five respondents who fall into the "less" category are primigravidas. In addition, the number of primigravids that scored "1" was more than other risk factors. Gravida status is often associated with knowledge, attitudes, and behaviors in pregnancy.

Pregnant women obtain knowledge about hypertension prevention through pregnancy classes or ANC. Multigravida or those who have a history of hypertension have gained this knowledge earlier than primigravida. A person who has felt, undergone and endured a problem has formed his behavior and attitude to overcome the same thing in the future. The results of this study are in accordance with the opinion Mulyani (2022) that knowledge results from a person's perception of an object in positive or negative forms. The results of this sensing determine a person's attitude and behavior in facing a problem. Knowledge is not only obtained from formal education but also experience. Primigravida has no experience with the prevention of hypertension in pregnancy when compared to multigravida, so preventive behavior has not been formed in this pregnancy (Mulyani et al., 2022).

Opinion Mulyani (2022) In line with research conducted by Prathima (2020) that multigravida is superior in terms of knowledge, attitudes, and behaviors about the signs, symptoms, and prevention of hypertension in pregnancy when compared to primigravida. However, both have less attention to hypertension in pregnancy (Mulyani et al., 2022). This study found similarities with Mulyani and Prathima's research that neither primigravida nor multigravida received the "good" category. The majority of respondents received the "moderate" category and a small number received the "less" category (Prathima, 2020).

3.2.Self-Care Ability After Intervention

The majority of respondents had self-care skills in the "adequate" category and there were no more respondents in the "less" category and there was an addition of respondents who were included in the "good" category after receiving "Bumil Waspada". Self-care indicators that most respondents never did have been greatly reduced. Three of the nine indicators that still get a score of "1" are continuing to

work even though they feel tired, limiting tea/coffee consumption, and continuing to do light exercise to maintain fitness and gain excess weight.

Work is one of the factors that researchers consider to have a role in this study. Most pregnant women have jobs as employees and self-employed and some are IRTs. Jobs such as IRT, self-employed, and permanent employees are responsible for home work. The burden of responsibility, if not supported by good cooperation with the partner, can affect the good and bad behavior of a pregnant woman in preventing hypertension. The results of this study are in line with the opinion Rahmayati (2020), that the partner often offers little help, so the mother feels overwhelmed with the responsibilities she has. Therefore, some mothers admitted that they did not get rest, even though their partners had returned from work (Diana & Turiyani, 2022; Rahmayati, 2020).

The time that mothers have is spent doing household chores and their roles as wives, mothers, and members of society. Daily homework is considered a form of light exercise equivalent to a leisurely walk or pregnancy gymnastics. Pregnancy gymnastics is one of the activities carried out in the pregnancy class, but the pregnancy class was stopped since COVID-19 and started again in July in several villages, so that respondents have not had the opportunity to take part in pregnancy gymnastics and some are busy with activities at home or office so they do not have time to take part in pregnancy classes.

The researcher's statement is in line with the opinion (R. Putri & Nuzuliana, 2020), that women have various roles after marriage, including as a wife, housewife, child caregiver, community member, and also participate in earning a living, so that their daily time is spent playing these roles (Rahmayati, 2020). Also in line with the opinion Rinaldi et al. (2022), that household activities such as sweeping, cooking, washing, babysitting, and other household chores require extra energy, so some mothers consider these activities to be the same as exercising (Rinaldi et al., 2022).

3.3.The Effect of "Pregnant Woman in Alert" on Self-Care Ability

The researcher analyzed that there was an increase in ability from the category of "poor" to "sufficient", "sufficient" to "good", and there was an increase in score acquisition after the intervention was given even though it remained in the same category. The improvement in ability can also be seen from the statement indicators in the questionnaire, which only leaves 3 out of 9 indicators that respondents have never done.

"Bumil Waspada" is a form of health promotion that prioritizes how to prevent hypertension in pregnancy, such as diet, walking, regular ANC, and hydrotherapy. "Bumil Waspada" was given by the researcher to the respondents as self-care assistance in the form of an educational support system with the aim of changing the behavior of pregnant women with hypertension risk factors to pay more attention to self-care for the prevention of hypertension in pregnancy. This study proves that health promotion is able to change behavior, which can be seen from the results of statistical tests and the improvement of self-care categories before and after the intervention is given. The results of the analysis support the hypothesis that there is an influence of "Bumil Waspada" on the ability to take care of themselves in pregnant women with hypertension risk factors. The results of this study also prove the opinion Aliva et al., (2021), that health promotion has the goal of changing the behavior of individuals or communities in the health sector, so that they can hold activities to achieve a healthy life.

This research uses social media WhatsApp and Instagram as a health promotion media. WhatsApp and Instagram is a social media that is widely used to convey messages and is equipped with interesting features, so it is more effective than other media. Social media has advantages, including being able to send messages, images, and facilitate long-distance communication. Illustrated educational texts are one of the breakthroughs to improve cognitive aspects on social media. Moreover WhatsApp has a discussion feature that can increase learners' interest during the education process. The results of this

study are in line with Aliva et al. (2021) opinion, that health promotion through leaflet media and WhatsApp able to change the behavior and compliance of pregnant women with the rules that have been recommended. Pregnant women's compliance cannot be separated from the role of midwives in providing education and support to pregnant women. Midwives or health workers take advantage of features in social media such as being able to send picture texts, videos, phone calls, and cost efective to disseminate health information and interact remotely (Aliva et al., 2021).

The respondents had an age range of 19 – 40 years and the majority had a history of high school education, so the respondents were very familiar with the use of social media in their daily lives. The display of health messages that utilize features in social media seems more attractive and easy to understand. Pregnant women can repeat the health information that has been given, so that their knowledge increases and behaviors are formed to respond to the problems they are or will experience. The researcher's opinion is in line with Aliva et al. (2021), electronic media such as social media have advantages, namely they are easy to understand, more interesting, involve all five senses, can be repeated repeatedly, and have a wider range (Aliva et al., 2021). It is also in line with Sarasati's (2020) opinion that health promotion through social media can increase mental readiness, knowledge, and attitudes of pregnant women. Social media facilitates interaction because information can be accessed quickly anytime and anywhere. Pregnant women can access accurate information about their needs before giving birth anytime and anywhere without having to spend a special time meeting with a midwife (Sarasati, 2020).

Based on the analysis above, it can be seen that "Bumil Waspada" delivered using social media can improve self-care skills. Health messages can be absorbed optimally and produce positive behaviors. In line with Notoadmodjo's theory (2012) in Dewie (2021), citing that knowledge is dominated by sight and hearing, a good basis of knowledge makes humans also behave well. Thus, knowledge-based behavior can last for a long period of time (Dewie et al., 2022).

4. Conclusion

"Bumil Waspada" affects the ability to take care of self-care about the prevention of hypertension in pregnant women with hypertension risk factors. Education about self-care to prevent hypertension in pregnancy needs to be given, especially to high-risk groups as a form of effort to prevent death from hypertension.

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